Re: 3L 115013

LETTER OF TRANSMITTAL

DATE:	September 9, 1994
TO:	Cesar Lee (3 HW21)
	US EPA Region III
	841 Chestnut Building, 9th Floor
	Philadelphia, PA 19107
SUBJECT:	FS Response Letter
FROM:	Joe Vitale
JOB NO.:	**6698-405**

_____ For Your Information
_____ For Your Use
_____ Per Your Request
__x__ For Your Review
__x__ For Your Comment

REMARKS: Enclosed is eight copies of the response letter. Please distribute to:
C. K. Lee
C. Cramer
J. Hwang
B. Rundell
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September 9, 1994

Mr. Cesar Lee, RPM
US EPA Region III (3 HW21)
841 Chestnut Building, 9th Floor
Philadelphia, PA 19107

Subject: Clarification of EPA Comments on Draft Feasibility Study for Metal Bank/Cottman Avenue Site in Philadelphia, PA

Telephone
508.371.4000
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Dear Mr. Lee:

The Cottman Avenue PRP Group (the Group) has reviewed USEPA Region III's comments on the draft Feasibility Study (FS) for the Metal Bank/Cottman Avenue Site in Philadelphia, Pennsylvania. The Group will endeavor to incorporate the comments into the revised version of the FS. Certain of the comments, however, require clarification before the Group can address them. In addition, the Group has prepared responses to certain other comments in an effort to clarify or confirm the Group's understanding. Set out below are both requests for clarification and Group responses to comments. The Group requests that the agency provide responses to these issues as quickly as possible in order to maintain the project schedule. Under a separate cover, the Group has taken the liberty of re-typing EPA comments and has assigned sequential numbers and commenter initials to facilitate the review of these comments. For those comments needing immediate attention and further clarification, the Group has provided their response or comment in this letter. Again for ease of review, the Group has listed in this letter the comment number, commenter's initial, and the comment in italics, followed by the Group's comment or question.

We would like to discuss these comments in the near future. As we have discussed with you, we will be calling the authors of these comments to schedule meetings to discuss these issues further.

Comment Author	Agency	Abbreviation
C. K. Lee	EPA/RCRA	CKL
Kevin J. Hess	PADER	KJH
Charlene C. Cramer	EPA/TSCA	CCC
Jack Hwang	EPA/UST	JH
Bruce Rundell	EPA/HYDRO	BR
Peter T. Knight	NOAA	PTK
Robert S. Davis	EPA/BTAG	RSD
Roy L. Smith	EPA/TOX	RLS
Cesar Lee	EPA/RPM	CL

cc: J. Ruggero (3AT31) 9/13/94 ... pg 17 & 18 only
[per CC request]

4-CKL *On p. 1-13, line 12-13, the sentence of "It is also likely....." because of no actual data to support the statement.*

The text cited in the comment cannot be found on the page cited; it appears to be on p. 1-5. The comment also does not indicate what action is desired. It is assumed that the Agency requests that the last sentence of the first paragraph of Section 1.3 be deleted because the Agency contends that there is no data to support the statement. The PRP Group, however, disagrees; there is abundant supporting evidence provided in Section 4 of the draft RI.

5-CKL *On p. 1-5, last 9th line, it should eliminate "suggest little or no.....underlying contamination from surface contact".*

1. RI Table 4-10 (p. 4-41 & 42), it indicated elevated PCBs were detected in the saturated zone on-site, such as SB-101 (5.3 mg/kg, SB-102 (24.6), SB-104 (7.3), SB-105 (12.0), SB-106 (156.0).

2. Top two feet of soil is not qualified to "clean fill" (as comment above).

3. RI p. 3-33, it stated ".....of desiccation cracks at the surfaces as well as animal borrows and rubble protruding upward through surface". It is not effectively isolated the underlying contamination from surface contact.

The text cited consists of two sentences, each dealing with a separate issue. The PRP Group considers both to be correct as provided in the draft FS and considers deletion unwarranted. While the Agency provides three citations from the RI as if they demonstrate that the FS text is in error, none of the RI citations disprove the statements in the FS.

It is unclear why the PCB data from RI Table 4-10 is cited. The fact that PCBs are present in the subsurface in the saturated zone 8 to 12 feet below grade does not refute the fact that the 1-2 feet of cover soils placed at the site isolate the underlying contamination from exposure at the surface.

Sampling of surface soils identified no contaminants at concentrations high enough to represent a risk to health or the environment, and certainly not at concentrations comparable to some samples from the subsurface. Thus the relatively-cleaner surface soils isolate the subsurface contamination from surface exposure, as the FS states.

The presence of desiccation or other surface cracks does not create any additional potential for exposure because the depth of such cracks is very shallow.

6-CKL *On p.1-5, last 5th line, it should add "the portion of the site is tidally influenced. The water quality effect due to the tide is unknown". *RI p. 3-41 stated under level affected by the tide.*

It is unclear precisely where the additional text is to be inserted; however, the PRP Group cannot find a place where it would be appropriate. As stated in the Group's responses to EPA comments on the draft RI, the tidal monitoring data demonstrates that there is no tidal influence except in the vicinity of MW-4 and MW-5. Therefore, the water quality across the vast majority of the site is known (as characterized by the remaining 13 wells, which are not influenced by the tides). The Agency's comment about the text on p. 3-41 of the RI or its applicability to the issue in question is not clear.

7-CKL *Table 1-1 should be redone; see RI comment.*

Please see the response to EPA's comment on the RI, which indicates that the table cannot be revised in the format requested.

8-CKL *p. 1-10, Line 1 & 2, "suggesting the presence of an off-site, upgradient source" should be out due to lack of data. As FS 1.1 to 1.3 ".... of greatest impact was a release from the UST in the southwest corner of the site.....", Fig. 1-4 & 1-5 should be revised in RI comment.*

Concerning the first sentence of this comment, the FS text that the Agency wishes deleted should not be deleted for the reason explained in that text. For many of the contaminants in groundwater, concentrations are lowest at the downgradient side of the site, and are highest at the upgradient side. It is therefore justifiable to conclude from these data that the source is upgradient of the upgradient edge of the site. The fact that there is no actual sample data from off-site upgradient does not refute the logical conclusion, based on the data available.

It is unclear what is meant by the second sentence of this comment.

10-CKL *p 1-10, last 6th line, '... the highest concentrations of groundwater contaminants to be found in upgradient wells...' A comparison as attached, MW-14 is an upgradient well & MW-3 is a downgradient well, which cannot prove the statement. Again, the wells near river affected by tides are unknown.*

This comment mentions two different issues (upgradient versus downgradient wells and tidal influence), seemingly as if they are somehow related. These two issues are not related. As has previously been stated, tidal fluctuations do not affect most of the site. The issue of upgradient and downgradient and characterization of contamination at the site cannot be compared using two data points (MW-3 and MW-14) in isolation.

12-CKL *p 1-11, line 12, 'PCBs and TPH distribution...' as compared below, the records indicated that the substantial migration was occurred from the site in 1993.*

	RI Fig 4-16 (1991)		RI Fig 4-17 (1993)	
	MF-9	RR3C	MF-107	MF-106
TPH (mg/kg)	1,410	17,000	15,000	NT
PCB (mg/kg)	ND (0.15 MF-9-2)	14	19.6	>5 (Field Screen)

It is unclear how the data cited in the comment indicates that substantial migration has occurred from the site in 1993.

13-CKL *As the risk assessment based on the specific COCs concentration detected in the different layers of media, the TPH and LNAPL could not be applied for adequate hazard identification or the nature of contamination. For example, risks from petroleum mixtures dominated by xylene may be different than those posed by benzene and related PAHs. Even that, the following table cannot find the correlation between total VOCs (or total SVOCs) and TPH.*

* *Most subsurface soil samples were up to 14 ft below grade. The high concentrations are not consistent in vertical position*

RI Table 4-7, RI Table 4-6 (mg/kg) RI Table 4-11 (mg/kg)

	Total SVOC	*Total VOC*	*Benzene*	*Xylenes*	*TPH*
SB-101 (8')		*14.8*	*0.062*	*11*	*3,500*
SB-0103 (15')		*0.052*	*0*	*0*	*870*
SB-106 (12')		*0.95*	*0.026*	*0.19*	*2,800*
B-18 (8')	*121*	*0.15*	*0.002*		*6,480*
B-18 (10')	*143*	*479*	*0.052*		*9,130*
B-18 (12')	*300*	*503*	*0*		*8,780*
B-18 (14')	*192*	*333*	*0*		*10,000*

Then, FS p. 2-17, "target clean up of 10,000 mg/kg total petroleum hydrocarbon (TPH)" cannot be accepted. It should be based on the risk of COCs.

In general, this comment is unclear because there are no risk target levels for TPH or LNAPL. Moreover, the risk assessments did not identify unacceptable risk associated with PCBs (or other constituents) in subsurface soils. Also, no chemical-specific ARARs for subsurface soils have been identified.

However, NOAA expressed their concerns in the Aquatic Risk Assessment about continual releases of PCBs into the mudflats and Delaware River. Therefore, one of the remedial goals developed for this site is reducing or eliminating the potential migration of PCBs into the aquatic environment. In the absence of oils, PCBs would not typically migrate in the soil matrix because of their low solubility in water and affinity to partition onto soil particles. The boundary concentration of 10,000 mg/kg total petroleum was developed based on the assumption that PCBs would migrate with LNAPL oils in the subsurface environment. This action level was determined based on the ability of the soil matrix to store or hold oils in place. TPH concentrations in soils above this action level may provide the conditions where PCBs migrate with LNAPL oils in the subsurface environment. The calculation to determine the storage capacity of soil to hold oils is located at the end of FS Appendix A.

In addition, subsurface soil remedial action objectives are typically based on potential groundwater impacts. Since groundwater was not considered as a medium of concern, contamination in the subsurface soil impacting the groundwater was not considered. Furthermore neither the Public Health nor the Aquatic Ecological risk assessments identified groundwater as posing unacceptable risk. In addition, if the dilution factor used in the Aquatic

Risk Assessment was applied to the Terrestrial Risk Assessment, exposure to groundwater would not pose unacceptable risk.

14-CKL *The LNAPL layer did not well identify in the subsurface samples. Even, in SB 101-108 of 1993 boring logs, no specific information was described. Actually, PCBs are classified as DNAPL, adsorbed onto colloidal soils with other NAPLs. Again, no definite relationship was found between PCBs and TPH. But one thing should be mentioned that the PCBs were so low in 1992 MW 6-P (even less than in GW sample - see attachment), because of the difference of sampling.*

"PCBs have a very restricted occurrence in groundwater at the site. In 1991, PCBs were identified only in MW-6 (12.3 ppb total PCBs), and in 1992, PCBs were identified in MW-6 (25.6 ppb) and MW-7 (1.3 ppb). Samples of floating petroleum product from MW-6 contained 1,090,000 ppb PCBs in 1991. A sample from MW-6 containing droplets of product collected in 1992 after purging contained 7 ppb total PCBs. Attempts were also made in 1992 to obtain product samples from MW-7 and PW-10, because those wells also were found to contain separate phase petroleum prior to purging using an interface probe. After purging, no separate phase product sample could be obtained, and samples from those wells contained no detectable PCBs. Wells MW-4 and 5, which had been found to contain small amounts of separate phase petroleum in 1991, contained no product in 1992, even prior to purging. These wells contained no detectable PCB in either 1991 or 1992." (on RI p 4-102).

It cannot conclude that the PCBs are decreased in MW-6P, or no PCBs in MW-7P & PW-10P.

"1992, the wells were again checked with an interface probe, and while no product was found in MW-4 or MW-5, product was again found in MW-6, as well as MW-7 and PW-10. It was suspected that the thicknesses measured might represent artificially-thick accumulations that were not representative of the thickness of product (if any) that existed in the surrounding formation. Thus, the thickness of product was measured in each well again approximately one day after purging

was completed. No measurable thickness was found to be present, although droplets or a sheen was present." (on RI p 4-102)

And NAPL cannot recover in one day after purging. Then FS Fig 2-1 PCB and NAPL areas of contamination is probably underestimated as compared with Attachment C.

The comment is unclear. Please clarify.

15-CKL *It found PCBs 12 mg/kg at 16' below grade of SB-105 and 15 mg/kg at 14' below grade of SB-106. So it is not only LNAPLs but also DNAPLs should be considered. FS p. 1-10, last 9th line, "....contaminations in soil do not appear to be migrating appreciably to groundwater" should be out.*

Detection of PCBs in subsurface soils at depths of 16 and 14 feet in SB-105 and SB-106, respectively, does not support the conclusion that DNAPLs are present at the site. Boring logs presented in Appendix A of the RI indicate that the approximate depth to groundwater for both borings was 14 feet at the time of drilling. It seems likely that the PCBs detected in these borings are associated with LNAPL, considering the proximity of impacted soil to the groundwater table. Please clarify the rationale for the statement that DNAPLs should be considered.

18-CKL *Collection (pump) Scheme*

The comment is unclear. Please clarify.

19-CKL *Collection system should be LNAPL and DNAPL*

The comment suggests that the collection system for LNAPL also should address DNAPL. The basis for this statement appears to be similar to that in comment number 15-CKL. Please refer to the response to that comment.

20-CKL *Treated Before Discharge*

The comment is unclear. Please clarify.

21-CKL *Sediment should be treated before on-site disposal according to land disposal restriction.*

According to the EPA document "Superfund LDR Guide #5 - Determining When Land Disposal Restrictions are Applicable to CERCLA Response Actions," the Land Disposal Restrictions (LDRs) apply only when "placement" of affected material occurs. "Placement" is explicitly defined in this document, and does not include movement of contaminated soil materials within a single contiguous area of contamination (AOC). Since the transfer of sediments at this site would constitute movement within a single AOC, it was determined that the LDRs do not apply in this case.

22-CKL *Run-on and run-off control system*

The comment is unclear. Please clarify.

23-CKL *S/S Treatability Study*

The comment is unclear. Please clarify.

24-CKL *Off-site disposal should have special considerations*

Oversized material not suitable for reuse as riprap will be segregated and disposed of off site at an appropriate and licensed disposal facility.

25-CKL *LNAPL and DNAPL both*

Please refer to the response to comment number 15-CKL.

26-CKL *In-situ S/S treatment should consider >1/4" debris, oversize soils (Attachment D)*

The grain size data summarized in Attachment D to the comments pertain to mudflat and riprap samples only. The majority of the soils being stabilized under this alternative are located in the southern portion of the site identified as the LNAPL area. The soils in this area contain mostly fill material which includes fine as well as coarse material. It is true that oversize particles in soils to be treated by S/S may present a problem. However, it is the function of treatability testing to assess whether (and how) media containing such particles may be treated by S/S.

27 & 31-CKL *Off-site disposal where*

The specification of individual locations for off-site disposal of materials is not within the scope of the FS. All materials to be disposed of off-site will be sent to an appropriate, licensed facility.

28-CKL *LNAPL and DNAPL*

Please refer to the response to comment number 15-CKL.

29-CKL *Soil washing is not suitable for high content (>40%) of silt and clay (see Attachment E).*

While the soil washing alternative is less suitable for soil containing high contents of silt and clay, this limitation can be mitigated in two ways. First, some methods of soil washing can handle fine grained media better than others. Second, fine grained soils can be mixed with coarser media prior to washing in order to maintain a favorable ratio of coarse to fine grained particles.

30-CKL *Over size soils and debris are not suitable for S/S*

This comment is listed under the C-8 Soil Washing/Containment System heading. Therefore, it is believed this comment was supposed to be "Oversized soils and debris are not suitable for soil washing." Please clarify.

We state on Page 3-19 of the FS: "The excavated soil and sediment are passed through a coarse-mesh sieve to remove material greater than two inches in diameter (rocks, debris, etc.)." Oversized gravel and stone will be cleaned separately if necessary and re-deposited as riprap or fill. Oversized material (debris) not suitable for reuse will be segregated and disposed of off site at an appropriate licensed disposal facility.

32-CKL *LNAPL and DNAPL*

Please refer to the response to comment number 15-CKL.

33-CKL *Site restoration and landscape due to excavation*

Site restoration and landscaping are intended to be included in all appropriate alternatives. Costs for these activities can be found in the remedial alternative cost tables (Tables 3-1 through 3-12). The text in Section 3 will be revised further detailing site restoration activities.

34-CKL *FS P-3-6, "the containment system would consist of steel sheet piling with an estimated total height of 30 feet" is underestimated. (SEE CKL DRAWING ON FIG 3-7)*

We believe that the total height of 30 feet for the sheet pile wall described under the containment system is not underestimated. The purpose of the containment system is to prevent potential migration of PCB oils floating on the groundwater table surface from discharging into the mudflats and Delaware River. It is not the purpose of this containment system to prevent the discharge of groundwater into these surface water bodies. Therefore, keying the sheet pile wall into the bedrock surface as suggested in Figure 3-7 of the FS comments would not be necessary. To meet the goals of the containment system, the sheet pile wall would be installed between 5 and 10 feet below the low mean tide (or to a greater depth if necessary due to structural design considerations) and approximately 15 to 20 feet above the low mean tide to be flush with the site ground surface. Therefore, the sheet pile wall would be approximately 30 feet in total height.

36-CKL *Short-term monitoring (quarterly - 5 years) - 5 years review.*

Quarterly monitoring for a two-year period, followed by annual monitoring thereafter, with reviews at five-year intervals, is included as part of each alternative. Please clarify the rationale for requesting quarterly monitoring for the first five years.

37-CKL *40 CFR § 264.310 Closure and Post-closure should be followed (Attachment F).*

The substantive requirements of closure and post-closure are included in the containment alternatives. RCRA landfill regulations may be relevant and appropriate; however, they are not directly applicable to this site. Please clarify the comment.

39-KJH *General - The FS appears to be written with a bias toward ignoring metal contamination in soils and groundwater rather than as an objective presentation of problems and methods of addressing them.*

The Group did not prepare the FS ignoring metals contamination in soils and groundwater as suggested by PADER. Based on risk criteria developed by EPA in the Public Health Risk Assessment and by NOAA in the Aquatic Life Risk Assessment, these media and associated contaminants such as metals were not identified as media and contaminants of concern.

Moreover, we prepared a Remedial Goals document dated March 31, 1994 that stated which media and contaminants would be addressed and which media and contaminants would not be addressed by remediation. The Group submitted this document to EPA, PADER, and NOAA for their review.

On April 6, we met with EPA, PADER, and NOAA representatives to discuss the remedial goals for the site. During this meeting, we presented the remedial goals for each medium. We expressed very explicitly both in the document and in discussion that the goal for subsurface soils and groundwater is no action. Reviewing the meeting minutes, EPA stated that access and deed restrictions would address "subsurface soils." PADER had no comment. While discussing groundwater in terms of a medium of concern, we presented our interpretation of PADER's Ground Water Quality Protection Strategy. We first defined the terms background and baseline. Background levels for groundwater are those levels which existed before man industrialized the area. Baseline levels for groundwater are levels which enter the site from upgradient sources. We believe that the Cottman Avenue site does not substantially degrade the groundwater quality when comparing to baseline levels. Again, PADER did not comment during the discussion. At the end of the discussion, EPA interjected and stated that the PADER Policy is an action-specific ARAR. Again, PADER had no comment.

We used the Remedial Goals document and direction given by the regulatory agencies during our April 6 meeting as bases in developing remedial goals and alternatives. Thus, the Group's approach for addressing subsurface soils and groundwater was endorsed by the agencies and is supported by the risk assessments for the site.

40-KJH *Page 1-5, Section 1.3, Paragraph 1. Ground water contamination resulting from off-site, upgradient releases is an unsubstantiated claim. It is recognized that upgradient sources may have contributed to groundwater contamination. It is also recognized that the site represents a source of ground water contamination.*

The existence of off-site, upgradient sources of contamination is not intended to be a "claim." Rather, it is the most logical conclusion (regardless of substantiation) to be drawn from the concentrations and distribution identified in on-site monitoring wells. The PRP Group has never argued that all groundwater contamination originated off-site; however, the significantly greater concentrations identified along the upgradient edge of the site appear to demonstrate that a large portion of the groundwater contamination beneath the site originated from off-site and upgradient sources. The lack of off-site analytical data does not disprove this conclusion.

41-KJH *Page 1-5, Section 1.3, Paragraph 3. The statement "little or no migration of contamination from subsurface soil to groundwater" is not accurate. Our interpretation of the data suggests the site is a source of groundwater contamination.*

The PRP Group agrees that this wording may be misleading, and could be changed to "...suggest little migration..." or "...suggest migration of low levels..." in order to indicate that the site soils contribute to groundwater contamination to some degree. However, it remains the case that groundwater entering the upgradient side of the site almost certainly carries a heavy load of contamination before it reaches the Metal Bank site.

42-KJH *Page 1-6, Table 1-1. With regard to metals, "Greater than background" is not a "Range of Concentration". Each metal above background should be listed individually as a contaminant with its associated range of concentration.*

This table is not meant to be an exhaustive enumeration of all contaminants at all locations. To do so would make the table long, cumbersome, and of little use. "Greater than background" clearly indicates that contamination is present, which was the sole intent of the table.

43-KJH *Page 1-10, Section 1.3.1. Discuss whether or not high lead concentration in water in well MW-1 could be related to the high concentration of lead in soil boring B108 without the contribution of a purely hypothetical upgradient source. Explain the effects of tidal flushing on fate and transport of contaminants.*

Because B-108 is downgradient of MW-1, it would not be logical to attribute contamination in the upgradient groundwater location to a downgradient soil location. As stated previously, tidal flushing appears to have nothing to do with the present distribution of contamination at the site, with the possible exception of the immediate vicinity of MW-4 and MW-5 which are located approximately 600 feet downgradient from MW-1.

In this and previous sets of comments on Metal Bank site documents, the unrelated issues of 1) tidal effects and 2) groundwater contaminant distributions that cannot be logically explained solely on the basis of on-site soil contamination, appear consistently together in the same comments. It leaves the clear impression that the PADER believes that tidal flushing has "rearranged" groundwater contamination, and that this mechanism can explain why the distribution of groundwater contamination does not correlate with the distribution of soil contamination. The Group disagrees because this conclusion ignores the tidal monitoring data that show tidal influence in only two wells on the site, both of them with contamination levels

comparable to other wells showing no tidal influence that are equally close to the shore of the site. The data therefore lead to the conclusion that groundwater contamination levels that are highest at the upgradient edge of the site are not a function of tidal flushing in the downgradient portions of the site.

44-KJH *Page 1-12, Paragraph 2, Second Bullet. Give EPA reference that PCB concentrations may be representative of background levels.*

The sentence cited in the FS refers to the previous sentence, which deals with arsenic and beryllium. Because this sentence could be misinterpreted, we will revise the text to read: "However, EPA suggested that the concentrations identified for trace metals may be representative of background levels."

45-KJH *Page 1-15, Section 1.4. The sentence "The subsurface soil data also suggest that these contaminants are not migrating to groundwater" is not supported by the data. This sentence should be removed. This section also trivializes high concentrations of lead and other metals and repeats the unfounded assertion that contaminants on-site are attributable to off-site sources.*

As with comment 41-KJH, the PRP Group agrees that this is a misleading statement, and should be edited to indicate that some soil contamination may be migrating to groundwater. Nonetheless, the data provided in the draft RI indicate that the distribution of contamination in soils does not correlate well with contamination in groundwater in the same locations, suggesting that some portion of the groundwater contamination originates elsewhere, and since the absolute concentrations are highest at the upgradient edge of the site, it is logical to postulate a source upgradient of that location.

46-KJH *Page 2-7, State ARARs. The Hazardous Waste Regulations also contain a provision for groundwater remediation. The Pennsylvania ARAR for groundwater for hazardous substances is that all groundwater must be remediated to "background" quality as specified by 25 PA Code 264.90 - 264.100 and in particular, by 25 PA Code 264.97 (i), (j) and 264.100(a) (9). The Commonwealth also maintains that the requirements to remediate to background is also found in other legal authorities.*

These provisions are part of the Commonwealth's RCRA regulations and, more specifically, of subchapter F, "Groundwater Monitoring." The applicability provision indicates that the regulations apply to the "owner or operator of a landfill, land treatment facility, waste pile ... or surface impoundment which is used to manage hazardous waste." (25 Pa. Code §

264.90(a)). The site is not any of such units. Thus, the regulations are not applicable to the site.

Moreover, even if the site were one of such units, the regulations would not be applicable because their effective date followed the last date on which the site "received" waste. Available records indicate that the site ceased receiving materials in July 1979. The date after which receipt of hazardous waste triggers applicability of the regulations in Part 264 is July 26, 1982. (25 Pa. Code § 264.1(a)(2)). Furthermore, the definition of "existing hazardous waste management facility" applies only to those facilities that were in operation after November 19, 1980. (25 Pa. Code § 260.2). The site was no longer receiving waste materials as of that date. For those reasons, the Part 264 regulations are not applicable to the site.

The regulations are, nevertheless, potentially relevant and appropriate. On the other hand, even if they are ARARs, they do not pertain to the site. As Bruce Rundell of EPA indicated at the meeting among EPA, PADER, NOAA and Group representatives on April 6, EPA and the Group consider the Commonwealth's RCRA regulations to be "action-specific" ARARs. This means that, under CERCLA, they apply to remediation of the site only if an action to which the regulations apply is undertaken as part of the site remedy. None of the alternatives in the FS proposes to treat the site as a hazardous waste management unit for remediation purposes. Also, none of the alternatives in the FS proposes to address groundwater. This is because (a) none of the risk assessments identifies groundwater as a pathway posing unacceptable risk and (b) no other ARAR requires groundwater remediation. Thus, the regulations are not triggered by proposed remedial alternatives for the site.

As to the "other legal authorities" to which PADER refers, the Agency should bring such authorities to EPA's attention for evaluation to determine their legal force and potential applicability to the site.

47-KJH *Page 2-9, State ARARs. The Cleanup Standards for Contaminated Soils (December 1993) should be included as a bullet following the Ground Water Quality Protection Strategy.*

The following text will be added to the description of the PADER Groundwater Protection Strategy in the State ARARs section.

> As part of the Pennsylvania Groundwater Protection Strategy, the PADER has produced an interim guidance document entitled "Cleanup Standards for Contaminated Soils (December 1993)." This document is intended to provide

soil cleanup criteria for both inorganics and organics which are protective of human health and groundwater resources.

The following line will be inserted into Table 2-3 Potential Action-Specific ARARs, etc.:

Medium	Requirement	Status	Regulation Synopsis	Consideration in RI/FS
Soil	State - (Guidance) Department of Environmental Resources Cleanup Standards for Contaminated Soils	To Be Considered	The DER's generic soil cleanup standards for organic and inorganic contaminants are based upon cancer and non-cancer direct contact risks and the contaminant's likelihood to impact groundwater.	The DER's soil cleanup standards may be used to develop remediation technologies and action levels for groundwater treatment at the Cottman Avenue Site.

48-KJH *Page 2-9, Section 2.2.2.1. Paragraph 2 states how the media of concern will be determined. However the discussions in the subsequent paragraphs does not follow that format. Contaminants in subsurface soils have the potential to migrate to groundwater and should be included as a media of concern. Protection of groundwater and subsequently the Delaware River must be considered. Media of concern appear to be established based solely on risk to individual receptors.*

As stated on page 2-11 of the FS, "Subsurface soil remedial action objectives are typically based on potential groundwater impacts. Since groundwater was not considered as a medium of concern, contamination in the subsurface soil impacting the groundwater was not considered." Furthermore, neither the Public Health nor the Aquatic Ecological risk assessments identified groundwater as posing unacceptable risk. In addition, if the dilution factor used in the Aquatic Risk Assessment was applied to the Terrestrial Risk Assessment, exposure to groundwater would not pose unacceptable risk to any potential receptors.

49-KJH *Page 2-9, Section 2.2.2.1. The section regarding groundwater being eliminated from the analysis should discuss and evaluate the state ARAR for groundwater and the Ground Water Quality Protection Strategy before drawing this conclusion.*

For a discussion and evaluation of the "state ARAR for groundwater," please see the response to comment 46-KJH.

The Commonwealth's Ground Water Quality Protection Strategy is not a promulgated regulation. Thus, it is not an ARAR; rather, it may be a policy "to be considered," or TBC. (40 C.F.R. § 300.400(g)(4)). In addition, like subchapter F of the RCRA regulations, the Strategy should be considered action-specific only. It therefore does not apply to the site because proposed remedial alternatives do not address groundwater. This is appropriate because neither the risk assessments nor another ARAR calls for groundwater remediation. For these reasons, the Strategy should not be applied to the site.

51-KJH *Page 2-11, Section 2.2.2.1, Last two bullets. The statement that there is no State ARAR for subsurface soils is false. Commonwealth ARARs dictate that contamination in the subsurface soil impacting the groundwater must be eliminated. Remedial Action must preclude any degradation of groundwater through leaching or other infiltration of hazardous substances in order to satisfy the groundwater ARAR.*

As the Group points out in its responses to comments 46-KJH and 49-KJH, groundwater remediation is not appropriate for the site. Thus, any state standard or rule for the protection of groundwater does not apply. This includes the Commonwealth's guidance, "Cleanup Standards for Contaminated Soils" (Interim Dec. 1993). Moreover, the subsurface soil policy is not a promulgated rule, so it is not an ARAR but is, rather, a TBC. Thus, it need not be considered in determining an appropriate site remedy.

52-KJH *Page 2-14, Surface soil. The Contaminated Soil Cleanup Standards should be referred to when establishing soil cleanup levels. The clean up standard for PCBs for the 10-E6 cancer level is 5 mg/kg.*

The Cleanup Standards for Contaminated Soils guidance document from PADER presents a soil cleanup level of 5 ppm PCBs for surface soils based on direct contact cancer risk of 1E-6. This cancer level was based on assumptions typical of unrestricted uses (such as residential or agricultural uses). These assumptions are not representative of the Cottman Avenue Site. All of the remedial alternatives, except C-1 No Action, contain provisions for deed and access restrictions. The exposure pathway represented by the DER's soil cleanup level is not representative of future site exposures. Therefore, the EPA-conducted site-specific risk assessment's results were used to select soil cleanup levels for PCB contaminated soils in the FS.

53-KJH *Page 2-17, Section 2.3.3, Paragraph 3. A Target Clean-up Level of 10,000 ppm TPH is unacceptable.*

10,000 ppm TPH is not a target cleanup level, but was intended as a boundary concentration to be used to delineate the area referred to in the FS as the LNAPL affected area. Therefore, we will revise the text accordingly. This boundary concentration was used because we believe that at TPH concentrations below this level, LNPL does not exist. The intent of this boundary concentration is to address LNPL and not subsurface soils.

This boundary was used for determination of volumes and/or areas of contamination to be remediated by the selected LNAPL area technology. The value of 10,000 ppm is based on the soil saturation limit of the affected materials. We believe that some subsurface soils within the LNAPL area may have sufficient oil content to promote the migration of PCBs. We have developed several alternatives to address PCB contaminated soils either by physically containing or by chemically treating this medium.

56-CCC *PCB containing groundwater, mudflat, river flat, rip-rap sediments, NAPL/oil remaining from the proposed containment system, and any residues or debris from and surrounding the source (tank after excavation) must be disposed of in accordance with the PCB regulations (40 C.F.R. § 761.60).*

PCB regulations (40 CFR § 761.60) are action-specific ARARs. Therefore, any soils, debris, or residues that are handled during UST excavation and removal which contain PCBs in excess of 50 mg/kg will be disposed off-site in accordance with 40 CFR 761.60. Soils, residues or debris that are not handled during these activities will be addressed by other components of the alternative selected. LNAPL removed pursuant to containment activities also will be disposed off-site in accordance with 40 CFR 761.60. However, excavated sediments will be consolidated on-site with soils within the same AOC. (See response to comment 21-CKL.)

57-CCC *The use of TSCA Compliance Program Policy number 6-PCB-2 (attached) may be considered in the treatment of any residual/collected PCB containing groundwater from the proposed NAPL/oil containment system.*

The following line will be added to Table 2-1:

Authority/ Action	Requirement	Status	Regulation Synopsis	Consideration in RI/FS
TSCA/ Separation Techniques	Federal - (Policy) TSCA Compliance Program Policy No. 6-PCB-2	To Be Considered	Identifies PCB separation activities requiring prior EPA approval.	PCB separation activities will be examined to determine if prior approval is necessary.

58-CCC *Off-site disposal, in accordance with 40 C.F.R. § 761.60, of the PCB contaminated soils in the courtyard is preferred to any on-site stabilization/disposal methods since the volume of soil is a known limited quantity.*

As described in Section 3 of the FS, PCB contaminated surface soils excavated from the courtyard area would be disposed of at a licensed off-site facility in Alternatives C-4 and C-5. Alternatives C-6, C-7 and C-8 will be revised to include off-site disposal of the courtyard soils.

66-JH *Page 2-4 RCRA Subtitle I, 40 CFR 280 Subpart F (Release response and corrective action for UST systems containing petroleum and hazardous substances) and Subpart G (Out-of-service UST systems and closure) should be included as Federal ARARs.*

The following line will be added to Table 2-1:

Authority/ Action	Requirement	Status	Regulation Synopsis	Consideration in RI/FS
RCRA/ Underground Storage Tanks	Federal - 40 CFR Part 280.60-.74 (Subparts F and G) Underground Storage Tanks	Potentially Relevant and Appropriate	Identifies requirements for corrective actions and closure activities conducted on underground storage tanks containing petroleum and hazardous substances.	Remedial activities performed on or near the underground storage tank may have to comply with these requirements.

Mention of 40 CFR 280 will also be made in Section 2.2.1 of the FS under the RCRA bullet.

67-JH *Table 3-3 The cost estimate, $481,000, for "Removal and Disposal of UST" is not accurate. This item was included in each of the following Remediation Alternative: C3, C4, C5, C7, C8 and C12. This item is prepared for the*

removal/disposal of a 10,000-gallon PCB tank which was previously closed in 1986 (RI 1-13). The detail breakdown of the cost, $481,000, shown in Table 3-3 indicated that $320,000 would be spent for the removal/disposal of "20,000 gallon tank content" and $80,000 for the removal/disposal of 5,000 gallons of cleaning material. Note that the tank has only 10,000 gallon capacity. Moreover, the removal/disposal of contaminated soils was not considered.

The volume of the tank will be changed to 10,000 gallons, and the cost of "Removal/Disposal of tank contents" will be decreased accordingly to $160,000. The volume of the cleaning material will be reduced to 2,500 gallons due to the decrease in tank size and will cost $40,000 to remove and dispose of this material.

As we discussed during our telephone conversation on September 9, it is our understanding that only soils required for the removal of the underground storage tank (UST) will be excavated. Excavated soils with contaminant concentrations greater than cleanup levels will be segregated and disposed of off-site at an appropriate licensed disposal facility.

A 10,000 gallon UST has the following approximate dimensions; 30' 5" length and 7' 11" outside diameter. Assuming the UST is buried 3' below the concrete slab and a 40 ft. long by 14 ft. wide by 11 ft. deep excavation area is required for removal of the tank, approximately 180 cubic yards of soil will be excavated. Any contaminated soils surrounding the UST that are not excavated during the UST removal will be addressed (treated, removed, and/or disposed) by other components of the remedial alternative.

68-BR *It appears that there may be a problem with DERs background ARAR for ground water. There are no off-site upgradient wells.*

Please refer to the responses to comments 46-KJH, 49-KJH and 51-KJH.

69-BR *It is possible that some metals may have been mobilized by the PCB oils on-site. The degree to which this may have occurred above elevated background conditions is difficult to determine. Dilution of VOC and metal contamination by the tidal influence on ground water makes efforts to remediate these contaminants to background largely irrelevant to the collection of LNAPLs.*

Several points are made in this comment. First, it is not obvious that metals can or will be mobilized by PCB-containing oils. Generally, metals are not corroded or dissolved by mineral oils. Although it may be possible that PCB-containing oils could mobilize a limited number of

metals, there is no evidence of this occurring at the site. The comment also suggests that it would be difficult to evaluate the extent to which such mobilization may be taking place. While this statement may be true, it is not clear what action is suggested or proposed by the reviewer. The statement regarding tidal influence effects on groundwater and the collection of LNAPL is not clear. Please clarify.

70-BR *Descriptions of the LNAPL collection system should include discussions of how the sheet pile wall will be designed to allow ground water and tidal surge water to pass through it. The text should also describe how the LNAPL collection system will work over the range of water table fluctuation. The text should also state what subsurface layer, if any, the sheet pile wall will be tied into and why.*

The LNAPL collection system engineering and design will be completed at a later date during the ROD or RD/RA process. Design engineering will require specific subsurface information which is not available currently and is not in the scope of a FS. Generally the sheet pile wall will extend only 5-10 feet below the low water elevation, or to a greater depth if necessary due to structural design considerations. This will essentially ensure that no LNAPL will be able to flow beneath the wall. Groundwater flow will continue beneath the sheet piling easing the hydraulic loading on the wall. Hydraulic stress caused by tidal surging will be considered and addressed in designing the sheet pile wall. For example, installing weep holes through the sheet pile may be considered to reduce the hydraulic stress. The specific details of this structure will be provided during the RD/RA process.

Specification of the precise nature of the LNAPL recovery equipment is also beyond the scope of the FS. There are many ways in which water table fluctuation can be handled in a recovery system. The simplest is to select a recovery technology which is somewhat mobile and can follow the fluctuations of the water table, such as floating pumps or skimmers.

71-PTK *The selection of remedial alternatives for the Metal Bank/Cottman Avenue NPL site should include the removal of contaminated media with off-site disposal without a containment system. This alternative should be added to the list of five proposed remedial alternatives, proposed during the meeting, which includes C-1 (No Action), C-2 (Limited Action), C-3 (Containment System), C-3A (Permeable Cap/Containment System), and C-4 (Impermeable Cap/Containment System).*

This comment seems to refer to list of alternatives presented at our April 20 meeting and not the FS. We have since revised this list of alternatives in the FS. However, the action that was

described in the comment (off-site disposal without containment) was presented in the FS as Alternative C-11. It was not retained for detailed analysis; however, Alternative C-12, off-site disposal with containment, was carried through for detailed analysis.

72-PTK *The media to be removed should include the underground storage tank, the tank contents, contaminated soils adjacent to the tank, riprap sediments, mudflat sediments, and river sediments. Included in the comparison of alternatives should be an analysis addressing maintenance costs of each alternative for as long as contamination is present on-site.*

Refer to the response to comments 56-CCC, and comment 67-JH and 71-PTK in the FS. If further information is required, please clarify.

73-PTK *With the exception of the No Action remedial alternative, each of the four selected remedial alternatives should, to some extent, help to reduce or eliminate the transport of contaminants from the Metal Bank of America site. Each of the four selected alternatives involve excavation and treatment of contaminated sediments and should also help to reduce exposure of potential receptors in the Delaware River to contaminated sediments. Of the remedial alternatives, the off-site disposal/containment system appears to provide the greatest protection of the environment and NOAA trust resources due to the fact that contaminated media would be excavated and disposed of off-site.*

One cannot necessarily assume that an off-site disposal alternative is more protective simply because contaminants are removed from the site. Short-term impacts related to excavation, on-site handling, and transportation off-site (over nearby surface streets) must be considered. In addition, there is no requirement to select the "most protective" alternative, if other alternatives provide an adequate degree of protection of human health and the environment, as required by the chemical- and action-specific ARARs.

74-PTK *Long-term monitoring of LNAPL and sediment is listed for many of the alternatives. Monitoring for the effectiveness of the remedial action should also include a biological component such as caged bivalves. This would be especially important for any of the alternatives that propose leaving highly-contaminated material (e.g., the LNAPL-contaminated soil in the southern portion of the site) on site.*

The Group recognizes that NOAA has expressed an interest in including biological sampling as part of a long-term program of monitoring the site remedy. The Group is not now, however,

in a position to give an opinion on such sampling. This is because the selection of a long-term monitoring program is likely to depend heavily upon the type and extent of remedy undertaken both on-site and in the aquatic environment.

75-PTK *The proposal of a target cleanup concentration of 2 mg/kg for PCBs in sediments is not protective of aquatic resources and is not consistent with the objectives for sediment remediation listed on page 2-14.*

The PRP Group will revise the proposed target cleanup concentration for sediments will be revised from 2 mg/kg for PCBs to 1 mg/kg for PCBs.

76-PTK *Page. 1-5: The description of the PCB contamination in the subsurface soil as "random" appears not to include the PCB-contaminated soil in the southern portion of the site associated with the Underground Storage Tank and extending to the areas of high PCB concentrations in the rip-rap and mudflat sediments. This area is referred to as the "LNAPL affected" area and is delineated in Figure 2-1.*

This comment is unclear. Please clarify.

79-PTK *Page 1-11. First complete paragraph, last sentence. 'Substantial migration' is a subjective and ambiguous term. Recent observations of seeps and an oily-looking layer on water in a hole in the riprap area (see above comment on Section 1.3) indicate that migration is still occurring.*

We believe that the UST in this area is no longer an active source as indicated by the most recent product thickness measurements of monitoring wells MW-4, MW-5, MW-6, MW-7, and PW-10. These measurements have shown reduction or disappearance of NAPL over the last three years. This trend indicates that there may be residual saturation of nearby soils; however, it is difficult to determine without removing the UST. Please clarify, if further information is required.

81-PTK *Section 1.3.2.3: The Ecological Risk Assessment (ERA) concluded that an important risk to aquatic organisms associated with the site was the result of accumulation of PCBs in fish species. The accumulation of PCBs in the tissues of fish species was considered as a means to integrate all the exposure pathways near the site. It could not be determined from the available information to what extent the observed PCB concentrations in Asiatic clams,*

silvery minnows, and channel catfish adjacent to the site were derived from existing sediment contamination or continued release of PCBs from the site.

This comment is unclear. Please clarify.

82-PTK *Page 1-16: No justification is provided for the conclusion that "dioxins/furans in sediment appear to have been derived from erosion and transport of site fill material..." Dioxins and furans are known co-contaminants of PCBs in used transformer oil.*

The implication of this comment appears to be that dioxins/furans may be present where they have been identified through migration with PCB-bearing oil. This is indeed possible and the text will be revised accordingly.

83-PTK *Page 1-16, last P: The quote taken from the aquatic ecological risk assessment ("the risk of adverse effects is expected to be low") referred to the direct toxicity of the estimated PCB concentrations in surface water. The risks to fish species due to the bioaccumulation of PCBs identified in the aquatic ecological risk assessment appear to have been ignored. As stated above, for fish species and their prey organisms, all exposure pathways may be important, including any LNAPL release to surface water and sediment.*

The Group does not understand this comment. The first sentence appears to imply that the quote is accurate, but only with respect to "PCB concentrations in surface water". The Aquatic risk assessment also appears to have indicated that the primary source of risk to fish species is through uptake of PCB-contaminated sediment. Thus, the statement in the FS would appear to be faithful to what was stated in the aquatic risk assessment. It is also assumed that since fish do not typically breathe water at the air-water interface (the only place where they would come into contact with LNAPL in/on surface water), the potential for exposure to petroleum product would be far greater in sediments, which is what was stated in the FS.

85-PTK *The target cleanup concentration of 2 mg/kg for PCBs in sediments is ten times the ER-M concentration of 180 µg/kg (Long and MacDonald, 1992), and may not be protective of aquatic biota and NOAA trust resources. This cleanup concentration is also twice cleanup concentrations at other Superfund sites in EPA Region III. In the FS, the ecological risk-based interim target cleanup levels (ITCL) was reported as 50 µg/kg based on the ER-L of Long and Morgan (1991). The current ER-L of Long and MacDonald (1992) is 22.7 µ g/kg. According to the FS, the TCL is policy-based rather than risk-based, but*

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it is not clear why the policy-based TCL was selected over the risk-based TCL nor is it clear on which "policy" the TCL is based. The last paragraph on page 2-14 states that one of the objectives of sediment remediation is to "...eliminate or minimize availability of exposure of aquatic and terrestrial organisms to sediment having PCB concentrations greater than 1 ppm on average and total PAHs greater than 32 ppm on average." This statement contradicts the information in Table 2-10 on page 1-1 of the "Tables" section of the FS which lists the TCL for PCBs as 2 ppm. A TCL of 1 ppm for PCBs would be more protective of environmental receptors, including NOAA trust resources, although still well above the ER-M concentration of 180 ppb. The FS needs to provide more supporting information to justify the selection of the 2 ppm TCL for PCBs.

The target cleanup level (TCL) for PCBs in Table 2-10 was incorrect and will be revised to read 1 ppm in sediments. The selection of 1 ppm as the TCL for PCBs in sediments is based upon previous discussions with NOAA in which the cleanup level of 1 ppm was agreed upon.

86-PTK *Page 2-17: LNAPL-affected soil TCL: Since PCBs are the primary contaminant of concern and were consistently measured at extremely high concentrations in the LNAPL layer (when the LNAPL had sufficient thickness to sample), a TCL for PCBs should be developed. It may be possible to determine a relationship between TPH and PCB concentrations in the LNAPL-affected soil.*

The risk assessment did not identify unacceptable risk associated with PCBs (or other constituents) in subsurface soils. Also, no chemical-specific ARARs for subsurface soils have been identified. For these reasons, it is not necessary to identify TCLs for constituents in subsurface soils. PCBs contained in the LNAPL only pose a risk in the context of migration to surface waters. The containment alternatives include provisions for control of LNAPL migration and off-site disposal of recovered LNAPL.

87-PTK *The FS did not include in the list of media of concern the soils adjacent to the underground storage tank (UST) in the southern portion of the site. Remediation of any contaminated soils adjacent to this UST needs to be addressed.*

As stated in the response to comment 67-JH, only those soils required for the removal of the UST would be excavated and disposed at an appropriately licensed facility. Contaminated

soils remaining adjacent to and in the area of the UST will be addressed by other components of the remedial alternatives.

89-PTK *Page 3-25. Why is implementability for this option classified as difficult? It is not clear why this option was eliminated from further consideration. If sufficient material is removed it may be as viable as the following option which was retained.*

The implementability of this option is considered moderately difficult due to the large quantity of soil (approximately 71,000 cy) to be handled. To put this in perspective, it would take approximately 4,000 truckloads to haul this quantity of soil. Excavation, transport and disposal of this volume of hazardous material presents significant soil handling and administrative requirements.

This alternative was eliminated due to its similarity to Alternative C-12, Off-Site Disposal with Containment. Alternative C-12 provides the same viability as the eliminated alternative with the added safety of a containment system and an insubstantial present worth impact ($68.898 million for the eliminated alternative versus $70.617 million for Alternative C-12).

90-PTK *Page 3-26. Section 3.2.12. Basically same comments as for Section 3.2.11.*

See response to comment 89-PTK.

91-PTK *All of the alternatives have a summary table which contains cost figures for monitoring (both short- and long-term). The FS should contain a description of what is proposed for each of these monitoring programs. The monitoring plans should also contain information about when additional remedial action(s) may be needed (e.g., the selected remedy is not protective of the human health and the environment) and the trigger values associated with this decision.*

Monitoring described under Alternative C-1 is included in each alternative. The monitoring frequency is described. The text will be modified to describe the parameters and media to be monitored. Identification of additional remedial actions and action levels is beyond the scope of the FS. These issues will be addressed, if necessary, during preparation of the ROD.

92-PTK *Alternative C-5 does not contain a provision for regrading of the excavated mudflat area with clean fill (page 4-7). Was this an omission? Again, on this same page, there is a provision for excavation and disposal off-site for contaminated surface soil. Is this soil from the courtyard area only?*

The procedures to be followed during the relocation of contaminated sediments are described in detail on page 3-8 of the FS. This section states that "The mudflat and riprap areas would be restored by the placement of clean fill material and the appropriate vegetation or riprap material..." In an effort to reduce redundancy (and the overall size of the document), this description was not repeated for each alternative, but was included by reference.

The statement regarding surface soil was incomplete. It will be edited to include "in the courtyard area."

93-PTK *Many of the alternatives have a reference to the use of temporary cofferdams (e.g., page 4-8). Further clarification of these structures in terms of placement, size, composition, etc. should be included in the FS. Also, environmental impacts from the use of these structures should also be addressed.*

The temporary cofferdams as described in the FS will function to control deposition while dredging operations are taking place. The sheet pile walls, which function as the cofferdam, will be installed along the approximate edge of riprap and extend out into both the Delaware River and mudflat as depicted in Figure 2-1 of the FS. Further clarification of the cofferdam in terms of size and composition is beyond the scope of a feasibility study. These types of details will be determined in the design phase. Please clarify, if additional information is required.

94-PTK *Page 4-8: The water generated from dewatering activities would be disposed of off-site. This statement needs to be clarified. How will this water be transported off-site? Will an NPDES permit be required? How will this water be treated if it contains contaminant concentrations in excess of AWQC?*

Possible disposal options for the dewatering fluids generated during the dredging and containment wall installation include: a hazardous waste facility; the local POTW; the Delaware River; and the site. The discharge option (and possible treatment) will depend upon the type and concentrations of contaminants in the dewatering fluid. If the water is to be disposed at a hazardous waste facility, then the water will be transported in trucks in accordance with all applicable state and Federal regulations. If the water is to be discharged to the local POTW, this discharge will most likely occur to a nearby sewer and will meet the POTW's discharge criteria. If the discharge is to the Delaware River, then this discharge will meet appropriate state and Federal requirements.

95-PTK *Where there is reference to excavation/dredging of sediments there should also be clarification as to how migration of contaminants will be eliminated or minimized during construction activities. How will AWQC be met?*

The alternatives involving excavation/dredging of sediments call for installation of a temporary cofferdam in the Delaware River. This mechanism is intended to minimize migration of suspended sediments. The reference to AWQC is unclear. In addition, it is unclear what time frame is being referenced (short-term impacts during dredging, or long term effects) and what portion of the surface water AWQCs would be applied to. Please clarify.

97-PTK *Page 4-12: Most of the alternatives have the statement, "Removal and off-site disposal of the underground storage tank..." However, none of these references discuss the removal of any adjacent contaminated soils(surface or sub). This subject should be addressed in the alternatives discussions, including cleanup levels.*

See responses to comments 67-JH and 87-PTK. Please clarify, if additional information is required.

98-PTK *Page 4-15: The statement is made that in-situ stabilization and solidification would effectively immobilize the organic and inorganic constituents. Work on other Superfund sites (e.g., DuPont Newport) has suggested that solidification may not immobilize all of the contaminants. Therefore, some would still be subject to a degree of leaching which would contradict the statement about this process not producing any residuals. Further clarification of the solidification/stabilization process should be provided.*

Treatability testing will be conducted to evaluate the extent to which organic and inorganic constituents in site media can be immobilized by S/S. It is understood that S/S may not be effective for all constituents, particularly volatiles. It may be effective for reducing the leachability of some semivolatiles, metals, and PCBs. The term "process residuals" refers to materials which are produced by the treatment process that must be further treated and/or removed from the site. Groundwater exposed to solidified media would not be considered a process residual.

99-PTK *Page 4-15: The long-term effectiveness of sheet pile walls depends on construction methods and the ability of the sheet pile to withstand the site conditions. Some clarification of the construction methods and site conditions*

as they would affect the performance of the sheet pile should be included in the FS.

Uncertainties related to sheet pile long-term effectiveness are described in the FS. Specific construction methods and design for site conditions are beyond the scope of the FS. These issues will be addressed in the RD/RA.

100-PTK *Table 2-9. These ranges are nationwide representing many different soil regions. J. Dragun and A. Chaisson in "Elements in North American Soils" (1991) report soil concentrations by state. Their reported soil concentrations (mg/kg) for Pennsylvania and New Jersey are:*

	Pennsylvania		New Jersey	
	Range	**Mean**	**Range**	**Mean**
Arsenic	3.8-31	12.9	<1.0-9.4	4.5
Beryllium	ND-3.0	1.25	ND-2.0	0.71
Chromium	15-100	53	5-100	46

This comment is unclear. Please clarify.

101-PTK *The values for 4,4' DDD are a range for the Delaware River in general and may include areas near point sources of DDD contamination. They do not represent background in the immediate vicinity of the site.*

This comment is unclear. Please clarify.

102-RSD *In the meeting this AM, Peter Swinick made a statement to the effect that no risk is associated with groundwater. Insofar as leachate is an expression of groundwater, the terrestrial risk assessment (see "Interpretation Section) states that metals and some organic contaminants are at levels that exceed chronic toxicity.*

As stated in the response to comment 13-CKL, neither the Public Health nor the Aquatic Ecological risk assessments identified groundwater as posing unacceptable risk. Since groundwater was not considered a medium of concern, contamination in the subsurface soil impacting the groundwater was not considered. The commenter's reference to leachate is unclear in regards to this site. Please clarify.

103-RSD *Since the risk is high for seeps and seeps are an expression of groundwater, the feasibility study should consider measures to control the contamination in groundwater, especially as it relates to groundwater discharge points.*

The issue of groundwater seeps to the surface, specifically to the riprap slope along the east and south boundaries of the property, is addressed in those remedial actions containing a sheet piling containment wall. This wall will extend below the surface of the Delaware River. Therefore, any groundwater leaving the property will have to flow under the wall. This will essentially eliminate releases of LNAPL to surface water or any groundwater seeps along the riprap area. Also, any groundwater discharge will be directly to the Delaware River, causing negligible impact on water quality from on-site contaminants due to dilution and existing background concentrations in the river .

104-RSD *On page 2-13 ff (Summary of ITCLs) and in Table 2-8, it is noted that a target clean-up level of 2 ppm is proposed for sediments. Neither the text nor the table offers any information regarding the basis for this other than to call it "policy-based". The document should offer a citation regarding the source of the policy upon which this figure is based.*

The target cleanup level will be revised from 2 ppm to 1 ppm PCBs for sediments in the next revision of the FS. The citation for policy-based target cleanup levels is footnoted on Table 2-8 and cited on pg. 2-13, in the second complete paragraph. The reference used for policy-based cleanup is the "Guidance on Remedial Actions for Superfund Sites with PCB Contamination," U.S. EPA, August 1990.

105-RSD *On page 2-15 (Areas & Volumes of Concern), it is stated that the 'RTCL' will be 10 ppm for PCBs. This is not acceptable, if for no other reason than the statement on 2-14: "Eliminate or minimize exposure to sediment concentrations greater than 1 ppm* on average*" (my emphasis). It is not clear how that average will be derived. If the 1 ppm average is for replicates from the same location, then that average is acceptable. But if that 1 ppm is an average derived from samples from more than one sampling location, then it is unacceptable and should not be used.*

The RTCL of 10 ppm for PCB refers to contaminants in surface soils. The statement on page 2-14 "Eliminate or minimize, etc." refers to contaminants found in sediments and associated ecological risk to receptors.

106-RSD *As we understand it, the PRP has re-considered the PCB cleanup target, but the document should still provide a full citation. The problem may be simply that they did not provide a reference section in the FS. The final FS should have a reference section. Regardless of the reason, a rationale and citation should be included.*

A reference section will be included in the final FS. The remainder of the comment is unclear. Please clarify.

107-RSD *The EPA PCB guidance in EPA Publication 540/G-90-007 of August 1990 for remedial actions at PCB contaminated sites notes for cleanup levels based on ecological considerations that, "Assessment of PCB sites by the Department of the Interior have concluded that PCB concentrations of 1-2 ppm will be protective of wildlife such as migratory birds ..." The guidance does not specifically set 2 ppm as the ecologically protective soil and sediment cleanup level. In fact at the July 8, 1994 meeting with the site's potentially responsible parties (PRPs) and HMM Assoc., the PRPs and HMM agreed the PCB target cleanup levels should be 10 ppm for courtyard soil and 1 ppm for sediment. The FS needs revision in Section 2.2.2, "Development of Preliminary Remediation Goals" and 2.2.3, "Remedial Action Objective Summary" and accompanying tables so there is no confusion as to the PCB cleanup levels for ecological features in different site media.*

EARTH TECH will revise Sections 2.2.2 and 2.2.3 and accompanying tables to reflect a 1 ppm PCB cleanup level for sediments and a 10 ppm PCB cleanup level for courtyard soils.

108-RSD *On pg. 2-14 it is stated the sediment remedial action objective will eliminate or minimize PCB and PAH exposure to ecological receptors from concentrations greater than 1 ppm on average for PCB and 32 ppm for PAH. The NOAA June 17, 1994 letter provides recommendations for correcting the PAH cleanup level. To be ecologically conservative, the cleanup plans should set the remedial objective level as a ceiling value or specify means and precision regarding determination of the average level so that an appropriate level will be reached. The recommended minimum precision needed to ensure achieving an ecologically conservative cleanup would be a standard error of the mean not exceeding 15 percent of the mean.*

We are not aware of a letter from NOAA dated June 17, 1994. It appears the reviewer may be referring to a letter from NOAA to Cesar Lee, dated June 27, 1994. The PAH cleanup levels

discussed in that letter do not differ from those described by the FS. The reviewer's concern regarding the precision of measured means is noted. However, the documented precision of the analytical method probably will preclude a standard error of the mean that does not exceed 15% of the mean. A one-tailed Student's t-Test with a probability of 95% will be used to evaluate whether the mean sample concentration is less than 1 mg/kg.

109-RSD *Once the FS is corrected, then the comment about pg. 2-15 (see memo, Davis to Lee, 6/28/94) on the "RTCL" of 10 ppm should be addressed. The draft FS did set 10 ppm as the RTCL for courtyard soil, but did not exclude that level for other site soils. If other soils are removed, such as around the tank, then a different soil PCB cleanup level will be needed.*

Excavation of soils in areas other than those associated with the courtyard and the UST removal will be part of remedial actions which treat, dispose of, or contain contaminated materials. As stated in the response to comment 67-JH, minimal soil excavation will take part during the UST removal. During the UST removal, only those soils required for the removal of the UST will be excavated and disposed of as required. Remaining contaminated soils in this area will be addressed by other components associated with the remedial alternatives.

110-RSD *The major problem with commenting on and finalizing the FS is that the Remedial Investigation (RI) has not been finalized and there are important issues about contaminant fate and transport outstanding. Of especial concern is the transport of subsurface contaminants to ground water (a major concern of the Commonwealth of Pennsylvania) with subsequent possible transport to the surface areas such as the site's rip-rap and adjacent mudflat sediment. The RI and FS should clearly state or list agreements reached in March and April 1994 meetings with EPA and NOAA on findings, conclusions, and additional study recommendations (i.e., seep sampling) presented in and from discussions about the Ecological Risk Assessment. Until these issues are finalized, remedial goals are hard to establish which in turn makes it difficult to finalize the FS.*

We absolutely agree. Without resolving these issues, the Group will have a difficult time finalizing the FS. The Group believed that an agreement with the EPA was reached in terms of remedial goals at the April 6th meeting. At that meeting we presented the remedial goals document and discussed which media are media of concern and which media are not media of concern. We also discussed cleanup levels for each medium of concern identified. During the discussion, NOAA and EPA requested that the cleanup levels for PCBs in sediments change

from 2 ppm to 1 ppm and PCBs in surface soils change from 25 ppm to 10 ppm. At no time during this meeting did any of the regulatory agencies request that additional media be added to the list of media of concern. Specifically, we stated that groundwater is not a medium of concern and gave reasons why this medium would not be addressed by remediation. That conclusion was not disputed during this discussion.

As a result, the Remedial Goals document and the results of the April 6 meeting were used in the FS as a basis for developing remedial alternatives. On July 8, we met with EPA, NOAA, and PADER to discuss their initial impressions of the feasibility study. Groundwater remediation was one of the major topics of discussion for this meeting.

It should have been a surprise to no one involved with this project which alternatives were included in the FS. In fact, a list of alternatives being considered for the Cottman Avenue site was given to the regulatory agencies in April. Many of the issues we thought were resolved are apparently not resolved which makes it difficult to finalize the FS. Again, we agree with your concerns.

111-RSD *Agreement on contaminant fate and transport issues is often hard to obtain, resulting in the recommendation that such data gaps be addressed in sampling as part of pre-remedial design or the 5-year remedial monitoring. The PRPs seem averse to this 'after-the-fact' ROD sampling / monitoring. In a June 21, 1994 letter from HMM requesting initial clarification of EPA comments on the draft RI, HMM notes, "the Group believes that it is completely inappropriate for the Agency to delay decisions on the need to remediate any areas or media until, during or before the design phase."*

The EPA developed the RI/FS process because the agency believes that this process is the most effective and efficient way of determining the appropriate remedy for a given site. At each step of the process decisions have to be made in order to progress to the next step because the alternative of circumventing this process may lead to selecting an inappropriate remedy.

The PRP Group believes that delaying decisions on the need to remediate any areas or media until, during, or before the design phase is inappropriate because it may lead to the selection of an inappropriate remedy. We are simply requesting EPA to allow the PRP Group to follow EPA guidance in completing the RI and FS.

112-RSD *In summary, the draft FS, as far as it goes, presents some initial good start points for addressing contaminants in site surface soil and area of NAPL/oil contamination and adjacent mudflat / rip-rap and river sediment. The FS and*

RI should address data gaps in fate and transport of site subsoil / groundwater contaminants or agree to defer resolution of these data gaps in post ROD sampling.

Please refer to comment 111-RSD for response. Again, we do not believe there are significant data gaps in the RI and FS as suggested by EPA. Please clarify, if further information is required.

113-RLS *Pg. 1-12. The risk summary that starts on this page appears to be based on EPA's first draft of the health risk assessment. The summary should be updated to reflect the second draft (mailed 2/1/94).*

This issue has already been addressed in the responses to Agency comments on the draft RI. The same revisions will be made.

114-RLS *Pg. 1-13. The discussion of risks to recreational boaters should acknowledge that risks associated with incidental ingestion of rip-rap sediments were in the 1E-5 range.*

The FS will be so revised.

115-RLS

The data used to calculate the 95% UCLs are currently being reviewed, and will be provided to the Agency shortly.

116-CL *General, Section 1 "Introduction":*

Additional text and narration has been augmented onto this Section [i.e., FS pg. 1-2, Section 1.2.1 "Site Description" *vs.* RI pg. 1-4, Section 1.4.1 "Site Description"*] resulting in another round of comments concerning the RI. This Section of the FS was to be a summary of the RI.*

Since the RI conclusions are also brief, refer the FS to the respective RI Sections, pages, etc. Eliminate all contents in Section 1 of this FS and DO NOT add text deviating from the final RI.

Revisions to the RI that are applicable to the FS will be reflected in the FS as appropriate. Please clarify, if further information is required.

117-CL

The Agency risk assessments will be included as appendices to the final RI, as requested.

The Group appreciates the opportunity to discuss with the Agency its concerns on the draft FS.

In the interim, please give me a call if you have any questions.

Very truly yours,

EARTH TECH

Joseph Vitale

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ATTACHMENT

1-CKL To add a list of abbreviations.

2-CKL To draw the location of Hancock Paper Co., Morris Iron & Steel Co. and Philadelphia Storm Outfall (stated on p. 1-2) on a map (Pg. 1-1 or 1-2).

3-CKL On p. 1-2, last 4th line, "clean" should be eliminated because the RI report indicated the surface soil was detected.

PCBs 0.05 to 4.70 mg/kg in 13 of 17 random samples (RI p.4-15)

Total SVOCs 1.1 to 11.8 mg/kg in 5 of 5 random samples (RI p.4-16)

Lead (220 mg/kg) copper (11.9 mg/kg), the source is unknown (RI p. 4-17)

4-CKL On p. 1-13, line 12-13, the sentence of "It is also likely....." because of no actual data to support the statement.

5-CKL On p. 1-5, last 9th line, it should eliminate "suggest little or no.....underlying contamination from surface contact".

1. RI Table 4-10 (p. 4-41 & 42), it indicated elevated PCBs were detected in the saturated zone on-site, such as SB-101 (_____.3 mg/kg, SB-102 (24.6), SB-104 (7.3), SB-105 (12.0), SB-106 (156.0).

2. Top two feet of soil is not qualified to "clean fill" (as comment above).

3. RI p. 3-33, it stated ".....of desiccation cracks at the surfaces as well as annual borrows and rubble protruding upward through surface". It is not effectively isolated the underlying contamination from surface contact.

6-CKL On p.1-5, last 5th line, it should add "the portion of the site is tidally influenced. The water quality effect due to the tide is unknown". *RI p. 3-41 stated under level affected by the tide.

7-CKL Table 1-1 should be redone; see RI comment.

8-CKL p. 1-10, Line 1 & 2, "suggesting the presence of an off-site, upgradient source" should be out due to lack of data. As FS 1.1 to 1.3 ".... of greatest impact was a release from the UST in the southwest corner of the site.....", Fig. 1-4 & 1-5 should be revised in RI comment.

9-CKL p 1-10, last 11th line, 'a comparison of the locations...' should be attached.

10-CKL p 1-10, last 6th line, '... the highest concentrations of groundwater contaminants to be found in upgradient wells...' A comparison as attached, MW-14 is an upgradient well & MW-3 is a downgradient well, which cannot prove the statement. Again, the wells near river affected by tides are unknown.

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11-CKL p 1-11, line r, '...to be little or no migration of these contaminants further offshore...' Ahy investigation can support the finding. Did the tidal washout be considered?

12-CKL p 1-11, line 12, 'PCBs and TPH distribution...' as compared below, the records indicated that the substantial migration was occurred from the site in 1993.

	RI Fig 4-16 (1991)		RI Fig 4-17 (1993)	
	MF-9	RR3C	MF-107	MF-106
TPH (mg/kg)	1,410	17,000	15,000	NT
PCB mg/kg)	ND (0.15 MF-9-2)	14	19.6	>5 Field Screen

13-CKL As the risk assessment based on the specific COCs concentration detected in the different layers of media, the TPH and LNAPL could not be applied for adequate hazard identification or the nature of contamination. For example, risks from petroleum mixtures dominated by xylene may be different than those posed by benzene and related PAHs. Even that, the following table cannot find the correlation between total VOCs (or total SVOCs) and TPH.

* most subsurface soil samples were up to 14 ft below grade. The high concentrations are not consistent in vertical position

RI Table 4-7, RI Table 4-6 (mg/kg) RI Table 4-11 (mg/kg)

	Total SVOC	Total VOC	Benzene	Xylenes	TPH
SB-101 (8')		14.8	0.062	11	3,500
SB-0103 (15')		0.052	0	0	870
SB-106 (12')		0.95	0.026	0.19	2,800
B-18 (8')	121	0.15	0.002		6,480
B-18 (10')	143	479	0.052		9,130
B-18 (12')	300	503	0		8,780
B-18 (14')	192	333	0		10,000

Then, FS p. 2-17, "target clean up of 10,000 mg/kg total petroleum hydrocarbon (TPH)" cannot be accepted. It should be based on the risk of COCs.

14-CKL The LNAPL layer did not well identify in the subsurface samples. Even, in SB-101-108°F 1993 boring logs, no specific information was described. Actually, PCBs are classified as DNAPL, adsorbed onto colloidal soils with other NAPLs. Again, no definite relationship was found between PCBs and TPH. But one thing should be mentioned that the PCBs were

so low in 1992 MW-6-P (even less than in GW sample - see attachment), because of the difference of sampling.

> "PCBs have a very restricted occurrence in groundwater at the site. In 1991, PCBs were identified only in MW-6 (25.6 ppb) and MW-7 (1.3 ppb). Samples of floating petroleum product from MW-6 contained 1,090,000 ppb PCBs in 1991.A sample from MW-6 containing droplets of product collected in 1992 (after purging) contained 7 ppb total PCBs. Attempts were also made in 1992 to obtain product samples of from MW-7 and PW-10, because those wells also were found to contain separate phase petroleum prior to purging using an interface probe. After purging, no separate phase product sample could be obtained, and samples from those wells contained no detectable PCBs. Wells MW-4 and 5, which had been found to contain small amounts of separate phase petroleum in 1991, contained no product in 1992, even prior to purging. These wells contained no detectable PCB in either 1991 or 1992." (on RI p 4-102)

It cannot conclude that the PCBs are decreased in MW-6P, or no PCBs in MW-7P & PW-10P.

> "1992, the wells were again checked with an interface probe, and while no product was found in MW-4 or MW-5, product was again found in MW-6, as well as MW-7 and PW-10. It was suspected that the thicknesses measured might represent artificially-thick accumulations that were not representative of the thickness of product (if any) that existed in the surrounding formation. Thus, the thickness of product was measured in each well again approximately one day after purging was completed. No measurable thickness was found to be present, although droplets or a sheen was present." (on RI p 4-102)

And NAPL cannot recover in one day after purging. Then FS fig 2-1 PCB and NAPL areas of contamination is probably underestimated as compared with Attachment C.

15-CKL It found PCBs 12 mg/kg at 16' below grade of SB-105 and 15 mg/kg at 14' below grade of SB-106. So it is not only LNAPLs but also DNAPLs should be considered. FS p. 1-10, last 9th line, "....contaminations in soil do not appear to be migrating appreciably to groundwater" should be out.

16-CKL Groundwater should be protected according to CFR §264.92. The potential adverse effects on hydraulically-connected surface water should be considered (§264.93(b)(2)).

Detailed Analysis of Alternatives

C-1 No Action with Monitoring

17-CKL The sentence should be added:

The "no-action alternative serves as a baseline condition against which other remedial technologies or alternatives are compared, as required by the NCP.

C-5 Impermeable/Containment System

18-CKL Collection (pump) Scheme

19-CKL Collection system should be LNAPL and DNAPL

20-CKL Treated Before Discharge

21-CKL Sediment should be treated before on-site disposal according to land disposal restriction.

22-CKL Run-on and run-off control system

C-7 In-Situ Stabilization/Containment System

23-CKL S/S Treatability Study

24-CKL Off-site disposal should have special considerations

25-CKL LNAPL and DNAPL both

26-CKL In-situ S/S treatment should consider >1/4" debris, oversize soils (Attachment D)

C-8 Soil Washing/Containment System

27-CKL Off-site disposal where

28-CKL LNAPL and DNAPL

29-CKL Soil washing is not suitable for high content (>40%) of silt and clay (see Attachment E).

30-CKL Over size soils and debris are not suitable for S/S

C-12 Off-site Disposal/Containment System

31-CKL Off-site disposal where

32-CKL LNAPL and DNAPL

33-CKL Site restoration and landscape due to excavation

. . . . . .

34-CKL FS P-3-6, "the containment system would consist of steel sheet piling with an estimated total height of 30 feet" is underestimated. (SEE CKL DRAWING ON FIG 3-7)

35-CKL The installation time and O&M time should be stated.

36-CKL Short-term monitoring (quarterly - 5 years) - 5 years review.

37-CKL 40 CFR § 264.310 Closure and Post-closure should be followed (Attachment F).

38-KJH General - The headings of tables need to be more specific. The reader should not have to search the text to understand what a table represents.

39-KJH General - The FS appears to be written with a bias toward ignoring metal contamination in soils and groundwater rather than as an objective presentation of problems and methods of addressing them.

40-KJH Page 1-5, Section 1.3, Paragraph 1. Ground water contamination resulting from off-site, upgradient releases is an unsubstantiated claim. It is recognized that upgradient sources may have contributed to groundwater contamination. It is also recognized that the site represents a source of ground water contamination.

41-KJH Page 1-5, Section 1.3, Paragraph 3. The statement "little or no migration of contamination from subsurface soil to groundwater" is not accurate. Our interpretation of the data suggests the site is a source of groundwater contamination.

42-KJH Page 1-6, Table 1-1. With regard to metals, "Greater than background" is not a "Range of Concentration". Each metal above background should be listed individually as a contaminate with its associated range of concentration.

43-KJH Page 1-10, Section 1.3.1. Discuss whether or not high lead concentration in water in well MW-1 could be related to the high concentration of lead in soil boring B108 without the contribution of a purely hypothetical upgradient source. Explain the effects of tidal flushing on fate and transport of contaminants.

44-KJH Page 1-12, Paragraph 2, Second Bullet. Give EPA reference that PCB concentrations may be representative of background levels.

45-KJH Page 1-15, Section 1.4. The sentence "The subsurface soil data also suggest that these contaminants are not migrating to groundwater" is not supported by the data. This sentence should be removed. This section also trivializes high concentrations of lead and other metals and repeats the unfounded assertion that contaminants on-site are attributable to off-site sources.

46-KJH Page 2-7, State ARARs. The Hazardous Waste Regulations also contain a provision for groundwater remediation. The Pennsylvania ARAR for groundwater for hazardous substances is that all groundwater must be remediated to "background" quality as specified

by 25 PA Code 264.90 - 264.100 and in particular, by 25 PA Code 264.97 (i), (j) and 264.100(a) (9). The Commonwealth also maintains that the requirements to remediate to background is also found in other legal authorities.

47-KJH Page 2-9, State ARARs. The Cleanup Standards for Contaminated Soils (December 1993) should be included as a bullet following the Ground Water Quality Protection Strategy.

48-KJH Page 2-9, Section 2.2.2.1. Paragraph 2 states how the media of concern will be determined. However the discussions in the subsequent paragraphs does not follow that format. Contaminants in subsurface soils have the potential to migrate to groundwater and should be included as a media of concern. Protection of groundwater and subsequently the Delaware River must be considered. Media of concern appear to be established based solely on risk to individual receptors.

49-KJH Page 2-9, Section 2.2.2.1. The section regarding groundwater being eliminated from the analysis should discuss and evaluate the state ARAR for groundwater and the Ground Water Quality Protection Strategy before drawing this conclusion.

50-KJH Page 2-10, Last Paragraph. The last paragraph mentions background soil concentrations. How were background soil concentrations determined. This information should be referenced in the document.

51-KJH Page 2-11, Section 2.2.2.1, Last two bullets. The statement that there is no State ARAR for subsurface soils is false. Commonwealth ARARs dictate that contamination in the subsurface soil impacting the groundwater must be eliminated. Remedial Action must preclude any degradation of groundwater through leaching or other infiltration of hazardous substances in order to satisfy the groundwater ARAR.

52-KJH Page 2-14, Surface soil. The Contaminated Soil Cleanup Standards should be referred to when establishing soil cleanup levels. The clean up standard for PCBs for the 10-E6 cancer level is 5 mg/kg.

53-KJH Page 2-17, Section 2.3.3, Paragraph 3. A Target Clean-up Level of 10,000 ppm TPH is unacceptable.

54-CCC The PCB contaminated soils located in the courtyard must be excavated to a minimum decontamination level of 10 ppm PCBs and disposed of according to 40 C.F.R. §§ 761.125 and 761.60, respectively.

It is strongly recommended that additional verification of the field testing kit analyses be performed by qualified laboratories to discount false positives and false negatives.

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The post sampling/verification, including an adequate number of samples, must be performed by a qualified laboratory using EPA analytical methods and not by field testing kits.

55-CCC Since further decontamination of the buildings which contain PCBs is not feasible, a minimum of a deed restriction must be placed on these structures to indicate the presence of PCBs and the appropriate disposal options.

56-CCC PCB containing groundwater, mudflat, riverflat, rip-rap sediments, NAPL/oil remaining from the proposed containment system, and any residues or debris from and surrounding the source (tank after excavation) must be disposed of in accordance with the PCB regulations (40 C.F.R. § 761.60).

57-CCC The use of TSCA Compliance Program Policy number 6-PCB-2 (attached) may be considered in the treatment of any residual/collected PCB containing groundwater from the proposed NAPL/oil containment system.

58-CCC Off-site disposal, in accordance with 40 C.F.R. § 761.60, of the PCB contaminated soils in the courtyard is preferred to any on-site stabilization/disposal methods since the volume of soil is a known limited quantity.

59-JH Removal of tanks is not the only action required by conducting corrective action at LUST site.

60-JH It is required to conduct detail site assessment for the entire area impacted by the release of the tank(s), if there is presence of free product or, the ground water is contaminated from the release.

61-JH It is required to perform corrective action to remediate the contaminated media.

62-JH It is not necessary to remove the contaminated soil at the time of tank excavation. However, soil remediation should be addressed either by in-situ or ex-situ methods.

63-JH If the USTs stored products and/or wastes for part of the time in the past, the tank can be either classified as Subtitle I or Subtitle C tank.

64-JH Notify PADER 30 days prior to the execution of field activities for the tank removal.

65-JH Follow the PADER's guidance for conducting tank removals "Closure Requirements for Underground Storage Tank Systems", PADER, December 1993; and "Cleanup Standards for Contaminated Soils", PADER, December 1993. Note that cleanup level in soils for TPH is 500 ppm if the UST contained virgin fuel and the release is more than 2 years old.

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66-JH Page 2-4 RCRA Subtitle I, 40 CFR 280 Subpart F (Release response and corrective action for UST systems containing petroleum and hazardous substances) and Subpart G (Out-of-service UST systems and closure) should be included as Federal ARARs.

67-JH Table 3-3 The cost estimate, $481,000, for "Removal and Disposal of UST" is not accurate. This item was included in each of the following Remediation Alternative: C3, C4, C5, C7, C8 and C12. This item is prepared for the removal/disposal of a 10,000-gallon PCB tank which was previously closed in 1986 (RI 1-13). The detail breakdown of the cost, $481,000, shown in Table 3-3 indicated that $320,000 would be spent for the removal/disposal of "20,000 gallon tank content" and $80,000 for the removal/disposal of 5,000 gallons of cleaning material. Note that the tank has only 10,000 gallon capacity. Moreover, the removal/disposal of contaminated soils was not considered.

68-BR It appears that there may be a problem with DERs background ARAR for ground water. There are no off-site upgradient wells.

69-BR It is possible that some metals may have been mobilized by the PCB oils on-site. The degree to which this may have occurred above elevated background conditions is difficult to determine. Dilution of VOC and metal contamination by the tidal influence on ground water makes efforts to remediate these contaminants to background largely irrelevant to the collection of LNAPLs.

70-BR Descriptions of the LNAPL collection system should include discussions of how the sheet pile wall will be designed to allow ground water and tidal surge water to pass through it. The text should also describe how the LNAPL collection system will work over the range of water table fluctuation. The text should also state what subsurface layer, if any, the sheet pile wall will be tied into and why.

71-PTK The selection of remedial alternatives for the Metal Bank/Cottman Avenue NPL site should include the removal of contaminated media with off-site disposal without a containment system. This alternative should be added to the list of five proposed remedial alternatives, proposed during the meeting, which includes C-1 (No Action), C-2 (Limited Action), C-3 (Containment System), C-3A (Permeable Cap/Containment System), and C-4 (Impermeable Cap/Containment System).

72-PTK The media to be removed should include the underground storage tank, the tank contents, contaminated soils adjacent to the tank, riprap sediments, mudflat sediments, and river sediments. Included in the comparison of alternatives should be an analysis addressing maintenance costs of each alternative for as long as contamination is present on-site.

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73-PTK With the exception of the No Action remedial alternative, each of the four selected remedial alternatives should, to some extent, help to reduce or eliminate the transport of contaminants from the Metal Bank of America site. Each of the four selected alternatives involve excavation and treatment of contaminated sediments and should also help to reduce exposure of potential receptors in the Delaware River to contaminated sediments. Of the remedial alternatives, the off-site disposal/containment system appears to provide the greatest protection of the environment and NOAA trust resources due to the fact that contaminated media would be excavated and disposed of off-site.

74-PTK Long-term monitoring of LNAPL and sediment is listed for many of the alternatives. Monitoring for the effectiveness of the remedial action should also include a biological component such as caged bivalves. This would be especially important for any of the alternatives that propose leaving highly-contaminated material (e.g., the LNAPL-contaminated soil in the southern portion of the site) on site.

75-PTK The proposal of a target cleanup concentration of 2 mg/kg for PCBs in sediments is not protective of aquatic resources and is not consistent with the objectives for sediment remediation listed on page 2-14.

Chapter 1: Introduction

76-PTK Page. 1-5: The description of the PCB contamination in the subsurface soil as "random" appears not to include the PCB-contaminated soil in the southern portion of the site associated with the Underground Storage Tank and extending to the areas of high PCB concentrations in the rip-rap and mudflat sediments. This area is referred to as the "LNAPL affected" area and is delineated in Figure 2-1.

77-PTK Section 1.3, page 1-10 second full paragraph. When a hole was dug in the lower riprap area during the last round of sediment sampling, the whole filled in with water with a dark oily looking layer on its surface. This suggests that more than just old residue is available for release into the mudflats and river adjacent to the site.

78-PTK Section 1.3.1, page 1-11 top paragraph, first complete sentence. This statement suggesting little or no migration of contaminants further offshore is unwarranted due to the limited extent to which the river sediments were sampled. Sampling did not extend to the limit of measured contamination.

79-PTK Page 1-11. First complete paragraph, last sentence. 'Substantial migration' is a subjective and ambiguous term. Recent observations of seeps and an oily-looking layer on water in a hole in the riprap area (see above comment on Section 1.3) indicate that migration is still occurring.

80-PTK Section 1.3.2.3, page 1-15, first complete paragraph, first sentence. While no seeps were noted during the last round of sediment sampling, an oily layer on water in a hole in the

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riprap area was observed (see above comment on Section 1.3). Since this layer was floating on the water, as the water rose on the incoming tide it would not be unreasonable to assume that this layer would be pushed up and out of the sediment.

81-PTK Section 1.3.2.3: The Ecological Risk Assessment (ERA) concluded that an important risk to aquatic organisms associated with the site was the result of accumulation of PCBs in fish species. The accumulation of PCBs in the tissues of fish species was considered as a means to integrate all the exposure pathways near the site. It could not be determined from the available information to what extent the observed PCB concentrations in Asiatic clams, silvery minnows, and channel catfish adjacent to the site were derived from existing sediment contamination or continued release of PCBs from the site.

82-PTK Page 1-16: No justification is provided for the conclusion that "dioxins/furans in sediment appear to have been derived from erosion and transport of site fill material..." Dioxins and furans are known co-contaminants of PCBs in used transformer oil.

83-PTK Page 1-16, last P: The quote taken from the aquatic ecological risk assessment ("the risk of adverse effects is expected to be low") referred to the direct toxicity of the estimated PCB concentrations in surface water. The risks to fish species due to the bioaccumulation of PCBs identified in the aquatic ecological risk assessment appear to have been ignored. As stated above, for fish species and their prey organisms, all exposure pathways may be important, including any LNAPL release to surface water and sediment.

Chapter 2: Development of Remedial Action Alternatives

84-PTK Page 2-12, section 2.2.2.3, paragraph 2: The statement should be changed to read, "ITCLs are developed for each COC to ensure protection of human health **and** the environment...."

85-PTK The target cleanup concentration of 2 mg/kg for PCBs in sediments is ten times the ER-M concentration of 180 µg/kg (Long and MacDonald, 1992), and may not be protective of aquatic biota and NOAA trust resources. This cleanup concentration is also twice cleanup concentrations at other Superfund sites in EPA Region III. In the FS, the ecological risk-based interim target cleanup levels (ITCL) was reported as 50 µg/kg based on the ER-L of Long and Morgan (1991). The current ER-L of Long and MacDonald (1992) is 22.7 µg/kg. According to the FS, the TCL is policy-based rather than risk-based, but it is not clear why the policy-based TCL was selected over the risk-based TCL nor is it clear on which "policy" the TCL is based. The last paragraph on page 2-14 states that one of the objectives of sediment remediation is to "...eliminate or minimize availability of exposure of aquatic and terrestrial organisms to sediment having PCB concentrations greater than 1 ppm on average and total PAHs greater than 32 ppm on average." This statement contradicts the information in Table 2-10 on page 1-1 of the "Tables" section of the FS which lists the TCL for PCBs as 2 ppm. A TCL of 1 ppm for PCBs would be more protective of environmental receptors, including NOAA trust resources, although still well above the ER-M concentration of 180

ppb. The FS needs to provide more supporting information to justify the selection of the 2 ppm TCL for PCBs.

86-PTK Page 2-17: LNAPL-affected soil TCL: Since PCBs are the primary contaminant of concern and were consistently measured at extremely high concentrations in the LNAPL layer (when the LNAPL had sufficient thickness to sample), a TCL for PCBs should be developed. It may be possible to determine a relationship between TPH and PCB concentrations in the LNAPL-affected soil.

87-PTK The FS did not include in the list of media of concern the soils adjacent to the underground storage tank (UST) in the southern portion of the site. Remediation of any contaminated soils adjacent to this UST needs to be addressed.

88-PTK Section 3.2.11, p.3-25. Would soils in and below the water table significantly contaminated with LNAPL pose a significant source for release following remediation (i.e., excavation)? Based on observations in the riprap area and soil borings, the LNAPL layer appears to be relatively thin and predominantly in and above the water table zone (since it floats on the water surface). Isn't this the contaminated soil which is proposed to be removed by this remedial option. If not, why not?

89-PTK Page 3-25. Why is implementability for this option classified as difficult? It is not clear why this option was eliminated from further consideration. If sufficient material is removed it may be as viable as the following option which was retained.

90-PTK Page 3-26. Section 3.2.12. Basically same comments as for Section 3.2.11.

91-PTK All of the alternatives have a summary table which contains cost figures for monitoring (both short- and long-term). The FS should contain a description of what is proposed for each of these monitoring programs. The monitoring plans should also contain information about when additional remedial action(s) may be needed (e.g. the selected remedy is not protective of the human health and the environment) and the trigger values associated with this decision.

92-PTK Alternative C-5 does not contain a provision for regrading of the excavated mudflat area with clean fill (page 4-7). Was this an omission? Again, on this same page, there is a provision for excavation and disposal off-site for contaminated surface soil. Is this soil from the courtyard area only?

93-PTK Many of the alternatives have a reference to the use of temporary cofferdams (e.g. page 4-8). Further clarification of these structures in terms of placement, size, composition, etc. should be included in the FS. Also, environmental impacts from the use of these structures should also be addressed.

94-PTK Page 4-8: The water generated from dewatering activities would be disposed of off-site. This statement needs to be clarified. How will this water be transported off-site? Will an

NPDES permit be required? How will this water be treated if it contains contaminant concentrations in excess of AWQC?

95-PTK Where there is reference to excavation/dredging of sediments there should also be clarification as to how migration of contaminants will be eliminated or minimized during construction activities. How will AWQC be met?

96-PTK Page 4-9: The statement "Implementation of this alternative would reduce risk to human health and the environment to levels within the current federal regulatory guidelines (excess lifetime carcinogenic risk levels less and 1.0×10^{-6} for individual exposures and a hazard index of less than 1)...," appears in the FS for many of the alternatives. The FS should clearly state that the parenthetical phrase only relates to human health. Additional information should be included that specifically relates to reducing the risk to the environment.

97-PTK Page 4-12: Most of the alternatives have the statement, "Removal and off-site disposal of the underground storage tank..." However, none of these references discuss the removal of any adjacent contaminated soils(surface or sub). This subject should be addressed in the alternatives discussions, including cleanup levels.

98-PTK Page 4-15: The statement is made that in-situ stabilization and solidification would effectively immobilize the organic and inorganic constituents. Work on other Superfund sites (e.g. DuPont Newport) has suggested that solidification may not immobilize all of the contaminants. Therefore, some would still be subject to a degree of leaching which would contradict the statement about this process not producing any residuals. Further clarification of the solidification/stabilization process should be provided.

99-PTK Page 4-15: The long-term effectiveness of sheet pile walls depends on construction methods and the ability of the sheet pile to withstand the site conditions. Some clarification of the construction methods and site conditions as they would affect the performance of the sheet pile should be included in the FS.

100-PTK Table 2-9. These ranges are nationwide representing many different soil regions. J. Dragun and A. Chiasson in "Elements in North American Soils" (1991) report soil concentrations by state. Their reported soil concentrations (mg/kg) for Pennsylvania and New Jersey are:

	Pennsylvania		New Jersey	
	Range	Mean	Range	Mean
Arsenic	3.8-31	12.9	<1.0-9.4	4.5
Beryllium	ND-3.0	1.25	ND-2.0	0.71
Chromium	15-100	53	5-100	46

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101-PTK The values for 4,4' DDD are a range for the Delaware River in general and may include areas near point sources of DDD contamination. They do not represent background in the immediate vicinity of the site.

102-RSD In the meeting this AM, Peter Swinick made a statement to the effect that no risk is associated with groundwater. Insofar as leachate is an expression of groundwater, the terrestrial risk assessment (see "Interpretation Section) states that metals and some organic contaminants are at levels that exceed chronic toxicity.

103-RSD Since the risk is high for seeps and seeps are an expression of groundwater, the feasibility study should consider measures to control the contamination in groundwater, especially as it relates to groundwater discharge points.

104-RSD On page 2-13 ff (Summary of ITCLs) and in Table 2-8, it is noted that a target clean-up level of 2 ppm is proposed for sediments. Neither the text nor the table offers any information regarding the basis for this other than to call it "policy-based". The document should offer a citation regarding the source of the policy upon which this figure is based.

105-RSD On page 2-15 (Areas & Volumes of Concern), it is stated that the 'RTCL' will be 10 ppm for PCBs. This is not acceptable, if for no other reason than the statement on 2-14 : "Eliminate or minimize ...exposure...to sediment...concentrations greater than 1 ppm *on average*" (my emphasis). It is not clear how that average will be derived. If the i ppm average is for replicates from the same location, then that average is acceptable. But if that 1 ppm is an average derived from samples from more than one sampling location, then it is unacceptable and should not be used.

106-RSD As we understand it, the PRP has re-considered the PCB cleanup tar- get, but the document should still provide a full citation. The problem may be simply that they did not provide a reference section in the FS. The final FS should have a reference section. Regard- less of the reason, a rationale and citation should be included.

107-RSD The EPA PC guidance in EPA Publication 540/G-90-007 of August 1990 for remedial actions at PCB contaminated sites notes for cleanup levels based on ecological considerations that, "Assessment of PCB sites by the Department of the Interior have concluded that PCB concentrations of 1-2 ppm will be protective of wildlife such as migratory birds ..." The guidance does not specifically set 2 ppm as the ecologically protective soil and sediment cleanup level. In fact at the July 8, 1994 meeting with the site's potentially responsible parties (PRPs) and HMM Assoc., the PRPs and HMM agreed the PCB target cleanup levels should be 10 ppm for courtyard soil and 1 ppm for sediment. The FS needs revision in Section 2.2.2, "Development of Preliminary Remediation Goals" and 2.2.3, "Remedial Action Objective Summary" and accompanying tables so there is no confusion as to the PCB cleanup levels for ecological features in different site media.

108-RSD On pg. 2-14 it is stated the sediment remedial action objective will eliminate or minimize PCB and PAH exposure to ecological receptors from concentrations greater than 1 ppm on average for PCB and 32 ppm for PAH. The NOAA June 17, 1994 letter provides recommendations for correcting the PAH cleanup level. To be ecologically conservative, the cleanup plans should set the remedial objective level as a ceiling value or specify means and precision regarding determination of the average level so that an appropriate level will be reached. The recommended minimum precision needed to ensure achieving an ecologically conservative cleanup would be a standard error of the mean not exceeding 15 percent of the mean.

109-RSD Once the FS is corrected, then the comment about pg. 2-15 (see memo, Davis to Lee, 6/28/94) on the "RTCL" of 10 ppm should be addressed. The draft FS did set 10 ppm as the RTCL for courtyard soil, but did not exclude that level for other site soils. If other soils are removed, such as around the tank, then a different soil PCB cleanup level will be needed.

110-RSD The major problem with commenting on and finalizing the FS is that the Remedial Investigation (RI) has not been finalized and there are important issues about contaminant fate and transport outstanding. Of especial concern is the transport of subsurface contaminants to ground water (a major concern of the Commonwealth of Pennsylvania) with subsequent possible transport to the surface areas such as the site's rip-rap and adjacent mudflat sediment. The RI and FS should clearly state or list agreements reached in March and April 1994 meetings with EPA and NOAA on findings, conclusions, and additional study recommendations (i.e., seep sampling) presented in and from discussions about the Ecological Risk Assessment. Until these issues are finalized, remedial goals are hard to establish which in turn makes it difficult to finalize the FS.

111-RSD Agreement on contaminant fate and transport issues is often hard to obtain, resulting in the recommendation that such data gaps be addressed in sampling as part of pre-remedial design or the 5-year remedial monitoring. The PRPs seem averse to this 'after-the-fact' ROD sampling / monitoring. In a June 21, 1994 letter from HMM requesting initial clarification of EPA comments on the draft RI, HMM notes, "the Group believes that it is completely inappropriate for the Agency to delay decisions on the need to remediate any areas or media until, during or before the design phase."

112-RSD In summary, the draft FS, as far as it goes, presents some initial good start points for addressing contaminants in site surface soil and area of NAPL / oil contamination and adjacent mudflat / rip-rap and river sediment. The FS and RI should address data gaps in fate and transport of site subsoil / groundwater contaminants or agree to defer resolution of these data gaps in post ROD sampling.

113-RLS Pg. 1-12. The risk summary that starts on this page appears to be based on EPA's first draft of the health risk assessment. The summary should be updated to reflect the second draft (mailed 2/1/94).

114-RLS Pg. 1-13. The discussion of risks to recreational boaters should acknowledge that risks associated with incidental ingestion of rip-rap sediments were in the 1E-5 range.

115-RLS Pg. 2-15. I concur with the selection of surface soil in the courtyard, sediments, and LNAPL as the media in need of remediation. Based on the risk assessment, I would have also recommended subsurface soil outside the courtyard, but I realized that the risk calculations for that medium are wrong.

It turns out that I made a 1000-fold units error in entering the dioxin concentration for subsurface soils outside the courtyard. It should have been 4.35 ug/kg, not mg/kg. The total risk from incidental ingestion of this soil should therefore be in the 3E-5 range, not 5E-3, a major difference. As far as I can tell, no other media or contaminants are affected.

Because of (1) this error, (2) the discrepancies already found between the RI summaries and the data HMM provided EPA for the risk assessment, and (3) the third party comments you've recently received, we should recalculate all the health risks before you draft the proposed plan for this site. If you give me copies of (1) HMM's resolution to the discrepancies and (2) the third party comments, I can finish the calculations fairly quickly. Just let me know when you need it.

116-CL General, Section 1 "Introduction":

Additional text and narration has been augmented onto this Section [i.e. *FS Pg 1-2, Section 1.2.1 "Site Description"* vs. *RI Pg 1-4, Section 1.4.1 "Site Description"*] resulting in another round of comments concerning the RI. This Section of the FS was to be a summary of the RI.

Since the RI conclusions are also brief, refer the FS to the respective RI Sections, pages, etc. Eliminate all contents in Section 1 of this FS and DO NOT add text deviating from the final RI.

117-CL Add copies of EPA's Final Human Health and Aquatic and Terrestrial Risk Assessments onto the Appendix of the Final RI, as previously discuss, in order to support the FS.

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